THE LITTLE UNITY.

TENDER, ∴ TRUSTY ∴ AND ∴ TRUE.

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A COLLECTING TOUR THROUGH MY WOOD-BOX.

CORA H. CLARKE.

The ground is covered with snow to-day, and the flakes are still falling. The little people in the brook are safely protected by a roof of ice, on which the snow lies, so that we cannot even peep through to watch the "Ruff-coats" at their daily avocations, as I did when I was at the brook in December.

Shall we have to wait for a thaw before we can again go collecting? Not if we are so fortunate as to have a wood-box or wood-pile anywhere in the house. Many a time when I have sat down in front of a wood fire to replenish it, has each stick in turn seemed too interesting to sacrifice—it must be kept for further study, or for a place in my museum—and before I could find an uninteresting stick my fire has gone hopelessly out.

In the first place, I wish to learn to distinguish the sticks themselves by the peculiarities of bark and wood —they would differ in different sections of the country; my wood-box supplies, this winter, chiefly red-oak, white-oak, maple, and, of course, pine kindling. On the ends of the sticks, where the saw has made the surface smooth and even, there is much to be seen and questioned. First we notice a series of concentric rings, and we must apply to our text-book of Botany to learn about them,—how they are formed, and what is the meaning of the tiny holes which they sometimes show. Then we may also notice straight lines radiating from the center of the sticks to the bark. They are very distinct in my oak wood. Do they all begin at the center and reach the circumference? (Make a drawing of the end of each kind of wood, and then of the side of the stick, showing the bark.)

On the bark we shall, perhaps, discover the eggs of insects, or the cocoon of some tiny moth, and under it the curious burrows and remains of beetles, about whose habits we can read in some work on entomology.

Other pieces of wood have true green mosses on them, —creeping "Feather mosses," or the round cushion-like tufts of the "Bristle moss." On the latter we may find the little, urn-like, ribbed capsules on the erect stalks, which are often so short that the fruit is nearly or quite hidden among the leaves. Or we may find the young fruit with its conical cap more or less covered with erect hairs.

On some of the sticks grows a dainty Liverwort, whose creeping stem with its minute, alternate leaves looks, where only a few sprays appear, like a zig-zag or branching string of tiny, dark-colored beads,—brown or greenish brown. Perhaps from a thicker cluster of these leaves or sprays, looking as if the strings of beads were lying in abundant coils, will rise the little fruit-stalk with its wee four-valved pod.

We may also find various kinds of fungi growing on the bark or breaking through it; some of them look as if the wood itself were black and charred, and others have the appearance of warts, tubercles or pimples on the wood, or they spread about in smooth or rough patches—here are some brown patches on an oak which a friend likens to a Brussels carpet, but I think its harsh bristles more resemble those of a door mat.

But probably the most advantageous collecting which we can do in our wood-box will be to secure specimens of all the species of lichens which we find growing upon the wood. Their microscopic spores and spore-cases fortunately grow massed in clusters or fruit-disks, which are quite visible to the naked eye, being usually of a different color from the thallus, as that part of the lichen is called which answers to the stem, root and leaves of higher plants. The thallus may appear only as a spot or stain upon the wood, or it may form a sort of crust, or a leaf-like expansion, or be branching and bushy. You will be interested to see how the fruit spots vary in color, size and shape. Another time I will try to give you names for some of the species, if you will not be critical as to their length, for the greater number of them have no common names.

GOOD MANNERS.

S. M. MUNDY.

You have read here of many things *to do;* now there are others which should *not* be done, this is one,—don't shout

"Well," say some of you, "of course I know I ought not to shout or scream. I hardly ever do so purposely; it is very bad manners."

"Well," says another, "that is not a thing to make a fuss about. It is not wrong to shout. I should not talk out loud in a sick-room, of course."

And even some grown-up people often say: "Why trouble children about a little conventional question of manners? There are much more important things to attend to."

Now, I want to say that I consider good manners very important. So you see they and I disagree entirely. When people disagree it is generally because they do not really understand one another's meaning. Sometimes, of course, people do hold quite different opinions, but less often than they fancy they do. They would easily find this out if they were more careful to explain what they really did mean, and less anxious to contradict what they fancy their neighbor means.

Let me see if I can be clear enough to make you understand what I mean. Then I think we shall quickly agree. Why is it bad manners to shout, and why should a boy or girl care if fussy people call it bad manners?

It is bad manners to shout, because shouting voices are disagreeable to most people, and in that fact you find the real distinction between good and bad manners.

Good manners are the proof of a good heart. A person who has good manners is not willing to cause even small annoyances to his friends. Good manners have been called the little virtues. This is because whoever wishes to get the habit of good manners has to be constantly unselfish about little bits of things. For good manners oblige us to consider other people's comfort every minute, and that is very troublesome indeed to ourselves.

I remember once, in the cars, watching a well-dressed woman who was traveling with a sick brother. She took good care of him in most ways. She took all the burdens of the traveling on herself, and gave him the best of everything, but she talked so loud that people began to stare. He said to her:

"Oh, please don't talk so loud!" And she said: "I shall talk as loud as I like; it is my way; I mean no harm."

But it was not his way, and it was not other people's way, and she indulged herself in her way at their expense. As we traveled on, her loud voice seemed to fill the car; quiet people could neither read nor talk in comfort; business men who wanted to attend to their papers were disturbed; rude persons stared and laughed, and the sick brother, of whom she was trying to take care, was much more tired at the journey's end than he need have been. And all because one well-meaning woman had bad manners, which made her really selfish and unkind, though she was doing so much in many other ways to help her sick brother.

You say you don't mean to shout or scream when you grow up, and that you never mean to scream or shout in the cars. But if you can't learn to speak pleasantly while you are a child you will find it very difficult to do so when you grow up and find employment for all your thought and all your energy. Besides, a child's noisy voice is just as disagreeable as a grown person's; and, of course, there is no more reason why a child should be disagreeable than a grown person.

It seemed at first as if the raising and lowering of the voice in speaking was a mere bit of artificial politeness; but don't you now see that it goes deeper,— that other people's comfort is affected by it? And so it is with most of the apparently conventional rules that we call good manners. Certain ways of entering the room, of speaking, of answering questions, of eating and drinking, are good manners, and should be attended to, because the neglect of them causes annoyance and inconvenience to the people around you.

And so, once again, don't shout—when you talk. People hear you as well when you don't do so, and enjoy you a great deal more. If you want to be a pleasant and kind person when you grow up, you must begin by being a pleasant and kind child.

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TALKING TIMES AND THINGS TO DO.

And that was the reason so many of the boys and girls brought little blank books to the next meeting. Some of these books were quite new,—bought for the purpose; two were diaries which had been Christmas presents, and pages for accounts had been found in the back of them; some were the remains of a partly used pass-book, and the written pages had been neatly sewed across at the top and bottom, leaving the long edge open so the space between could be used like a portfolio for keeping slips of paper and bits of treasures; one was made up of writing paper, with the proper rulings for dollars' and cents' columns neatly prepared. Also that was the way the account-book company began to exist—mercantile club, the boys thought a better sounding name, until it was suggested that mercantile meant carrying on an actual trade, whereas we were only learning the first conditions necessary for *any* practical usefulnes, whether mercantile or home life, for one's self alone or for the care over others. Upon which it was readily determined that the simplest and most direct name was the best. Besides, we should be quite likely to become a company of companies, as account-book keeping was not at all the only thing we were doing, and intending to do. It happened to be a thing in which the interest of all was united, while before this the occupations were varied, the girls sewing, knitting, crocheting or drawing, the boys whittling, drawing or finishing work from scroll sawing—whatever they were interested in at the time—while the reading or talking went on outside of, or including, the work. Then those who had brought no books wished they had. So writing paper and needles and thread were brought out for making them on the spot, with pen and ink for ruling; and the big table, near which we always gathered, was soon covered with work. This being finished and cleared away, a row of industrious writers opened each his first page with the entry of cash in hand, and that of any small item which he might already have bought since the month began. Those who had no cash in hand learned where it should be put, and determined to show their parents that they were in earnest for a good purpose, so that a regular sum might be allowed them. Then the books disappeared and the usual occupations were taken up. Those who had no special work generally took turns in reading aloud, but to-night the talk went on, by Harry's saying: "If we are getting to be a company of branch companies we ought to have a general name to cover the whole thing." "Something that means keeping busy with the next thing as fast as it comes," added Sally. "Or rather, as fast as what we are doing is finished," wisely put in James. "I heard father and mother laughing the other day," said Jenny, "over the name of a little weekly paper, published in some country town further west. It was called *Keepapitchin'in Gazette.* We want to keep pitching into all sorts of things; perhaps we had better say so in our name, as the newspaper did." "We'll not be in a hurry about our name. Let it grow out of the results we begin to find in our lives from these helpful meetings. I can see that industrious habits are beginning to take hold of many of you already, as perhaps the first result of our gatherings, and out of that habit all good things may come in time." "O, yes," cried Sally, "you have named us yourself now! If industry is our first result it ought to be our name. I am sure it is just what we mean, and it is big enough to include all sorts of work." "The Industry! Hurrah for The Industry!" cheered Harry. "Don't let us hitch any 'club' or 'society' to it, but just be 'The Industry.'" General approval carried the question, and so we were named.

A VAIN ELEPHANT.

Cloe was a small performing elephant, belonging to a circus, and always marched into the tent to martial music, dressed very gaily in red and gold. She moved about in a majestic way, and did many wonderful things which the spectators applauded loudly, especially the children. Cloe seemed to appreciate that she was admired and finely dressed. One time the owner of the circus put the animals on exhibition for the children of the place without any performance, and the camels and elephants all came into the arena without their trappings on. The camels did not seem to quite like it, and the elephants acted a little awkward and surprised, but Miss Cloe took the matter seriously to heart. Her vanity was deeply wounded; she entered tossing her trunk from side to side, much as a petulant child jerks itself along, then she stood around apparently in a little pout, and after a while she threw herself on the ground, like a naughty child, and rolled around, making an ugly cry: after that she got up, and finding a piece of old canvas threw that over her back and looked around, as much as to say, "Where's the music?" but there was none, and she seemed to discover that the piece of canvas was not at all dressy, and she blew it off with her trunk. At this the children laughed, which seemed to annoy her still more, and she blew dust into the air until we could not see through it, and tossed the piece of canvas about, and gave us very plainly to understand that she was in a bad humor, and her keeper led her out, as mother's have to sometimes ill-behaved children. The next day Cloe was marched through the streets in the procession, all dressed in red and gold again, and she marched along with that conscious pride that characterizes a handsomely dressed belle, and entered the arena and went through her part of the performance as though she had never thought of being aught but a well-behaved, dignified elephant.

S. C. LL. J.

OUR TREES IN WINTER.

In protecting themselves against the cold of winter, all trees have not followed blindly the same rule; they have not imitated a leader in fashionable winter clothing, but each species for itself has quietly gone to work to select the best method at hand to provide itself against the cold, and has increased or decreased such protection as circumstances required.

—*John Robinson, in Bulletin of the Essex Institute.*

"Unity" Sunday School Lessons—Series XII.

THE MORE WONDERFUL GENESIS;

OR

CREATION UNCEASING.

BY H. M. SIMMONS.

LESSON IV.

THE GLOBES AND THEIR CREATION.

"THE FIRST DAY."

Genesis I: 2-5.

We pass now from the gathering and shaping of worlds to the early conditions and creations in them. We will take for comparison "the first day" of Genesis, which shows God moving on the watery deep and creating light. Let us see if the wonders of this, as of the "fourth day," are not still done and outdone.

"THE FACE OF THE DEEP."

The "Genesis" story, like many old cosmogonies, regards water as the source of all things, and so pictures the earth as at first a formless and empty "deep," a "face of the waters." But we can see an earlier world,—its "waters" not yet created. We know that the earth was once too hot to hold any water, and that its seas did not yet exist except in clouds. The planet Jupiter seems to show us another world still in that condition; for astronomers think his ever-changing surface is a dense envelope of clouds,—his oceans not yet made. Our rocks tell of a still earlier earth, with its "deep" and fiery sea, in whose waves of molten granite the very mountains were still held in solution, and above whose heat not even clouds could exist, but "the waters" were still invisible vapor. Geology tracing the same process further backward sees a still intenser heat, in which not even this vapor could exist, but its elements, oxygen and hydrogen, had not yet united. Astronomy again confirms this. The sun shows its water-vapor not yet created, its hydrogen still floating free in an envelope thousands of miles thick;—the other elements free too, our various compounds not yet made. From star after star the spectroscope brings back the same story. There, too, hydrogen and other elements are seen yet free,—and only a few of these, as if not all of our so-called elements were yet compounded and created. In such state the earth seems to have once been. But as we thus trace the earth backward to its vapory elements, its heat, too, finally disappears. Just as heating a hailstone melts, boils, vaporizes and cools it again to its original state for new clouds; so restoring to the earth in thought the heat which it has lost, leads us backward to that world-vapor in space, from which nebulæ seem to be still gathering. This shoreless abyss of invisible world-vapor is indeed a "deep" far more formless and void than "the waters" of the story.

WARMING THE WORLDS.

Let us now see how far more wondrously than the writer thought the creative spirit moved and still moves through this primal deep. We saw in the last lesson how a mysterious attraction or gravitation, like a creative hand, gathers and rounds this vapor into rolling globes. But in the process it heats the globes too. Condensation and pressure always create heat. The hammer heats the iron, the axle under pressure sometimes burns the car. Even air you can compress in a tube until it kindles tinder; and the meteor rushing into our atmosphere is set on fire by the pressure. The scientists tell us that even the condensation of vapor into rain drops produces heat. By the same principle the infinitely vaster and longer condensation of world vapor into globes creates that intense heat which the earth once had and the sun still has. This creation, too, still continues. Some astronomers think the sun's present supply of heat is kept up by meteoric masses falling from space into his surface, at the rate of some 300 miles a second as they would fall by gravity alone,—tremendous blows of the creative hammer heating the sun as our blows heat iron. More, however, think the sun's present heat is maintained by that same condensation and contraction of his mass which has heated all the globes; and mathematicians tell us his diameter would have to contract only four miles a century (too little for us to see in a thousand years) to create all the heat he radiates. Stars, too, are heated by the same process, many much hotter than our sun, judged by their brightness; and from some, though so many millions of millions of miles away, the heat is even felt by delicate instruments.

This creation is far too important to omit. The true Genesis story adds the text, "God said let there be heat," and that "it was good." How good! The old heat of the earth still helps to keep it alive; while the new-created heat of the sun turns winter into summer and death into life, making breezes blow and rivers flow, trees leaf and cattle live. And is it not a divine creation? How divine we should call it could we see the hand of God building our fire! Yet here is a more wondrous unseen hand, that has filled the earth beneath with heat, as a foot-stove, and built that vast hearth-fire of the sun, around which worlds are gathered in family circle, receiving comfort, food and life. If the poet sees the gravitation which rounds the worlds divine, how much more so when it warms them too!

CHEMICAL CREATIONS.

But turn from the sun to your own fire, and you see this creation made still more wonderful by another. Here is the same welcome heat, created in somewhat the same way too,—by the attraction between the coal and air. But this is a new form of *attraction*, called *chemical affinity*, and brings new creations. Gravity masses matter together and creates globes; but chemical attraction combines the elements in still closer union and creates new compounds. The carbon in the coal and oxygen in the air combine to create the carbonic acid which is the food of plants and builds the forests. On turning to the gas-flame you may see the very "waters" of the story created. The hydrogen in the gas unites with oxygen in the air, and creates water-vapor;—and there you may see it, instantly after the lamp is lighted, condensing on the cold chimney in the form of steam. So by this chemical attraction, combining two or more substances to form a third, the materials of seas and rocks and about everything else on earth have been made, in endless variety of compounds and creations.

MIGHTIER MOVEMENTS.

Often these creations show far fiercer force than fire. The old writer tells how the spirit or breath of God "moved on the face of the waters,"—perhaps referring to the wind on the sea. But what mightier movements than he dreamt of occurred long before, in the creation of the waters. The professor combining the oxygen and hydrogen to make a few drops, brings an explosion that shakes the room. What terrific shocks shook the earth to create the water of the oceans! Or to see the movements long before water is created we have but to look at the sun. There you see spots which the astronomers tell you are hollows vastly larger than the whole earth, yet dug and leveled in a few days. In the storms attending these spots the observer sometimes sees matter shot 100,000 miles high, and at the rate of over 100 miles a second,—as if something could be thrown from Chicago to Milwaukee between two ticks of the clock, and with such force that it would keep on four times around the earth before stopping. Rarely do our hurricanes blow 100 miles an hour. But we are told that storms sometimes sweep through the sun's chromosphere at such rate as if a hurricane should in half a minute after crossing the St. Lawrence reach the Gulf of Mexico. Perhaps, as many think, the sun is still too hot for chemical combinations, and these storms are generated by heat and electricity or other forces beyond our knowledge. But, however made, we there see on a stranger "deep" than "the face of the waters," a far mightier "breath of God" than this writer fancied.

LESSON V.

"THE FIRST DAY" (CONTINUED).

"LET THERE BE LIGHT."

But with the heat and chemical unions comes a still more wondrous creation. For still "the spirit of God moved on the face of the waters" which you saw made by the gas-flame, and said, "Let there be light." Said it silently through law, but none the less divinely. The professor, explaining little words by long ones, tells how heat made the carbon particles incandescent, and so started luminous vibrations. But why the light came he cannot tell. With all our science, every gas-light comes as mysteriously as the "light" of the story, and writing again on the darkness this old sentence, repeats the miracle of creation.

And what a miracle, when we stop to think! Those carbon particles in the gas were too fine to see; yet they instantly made a roomful of light,—even sent the light through the solid window and across the city to other eyes a miles away, before you had time to take down your hand. What a marvel that would be if it were seen but once! And how much greater when it is repeated every time a match is struck!

Or see the creation on a larger scale. The carbon particles in the greater heat of the magnetic current shine with more blinding brightness as the electric lamp, filling the square with light and sending it a score of miles. Or put a piece of common lime in the fierce heat of the oxy-hydrogen flame, and see the old miracle repeated exactly. This flame is simply the union of these two gases, and the creation of water-vapor; but in the water the dazzling lime writes again the old word, "Let there be light." By this calcium light we look back to that vast oxy-hydrogen flame which made our oceans, and in whose intense heat the whole globe shone brighter than this lime. And we know that still earlier the earth shone yet brighter, like a sun.

DAY.

As the earth cooled, its light grew dim and ceased. Darkness and the original night came again; yet only in a little spot behind the planet. For everywhere else shone a still more wondrous light of day,—created not before the sun, but by it. So the earth, forever rolling from under its night shadow, ceaselessly continues the old creation. The dawn travels around it, forever "dividing the light from the darkness;" the sunrise follows, forever writing for some land, in golden letters on the heavens, the old creative word. "Let there be light."

SUNLIGHT.

And what a light! Against the face of this sun even the calcium light looks like a black spot. For wondrous as was the creation we saw through man's agency, it is far more so beyond his reach. The pressure of your hand on the match, and the chemical and electric forces you manage, light a table, or a circle on a screen near by. But the pressure of the creative hand of gravity on the sun, with perhaps other forces there beyond our chemistry, light worlds many millions of miles away, more brightly, too, than 1,000 candles would light your room. Nor do all the planetary worlds together receive the millionth part of the sun's light, but the same day blazes out in every direction through space.

An ever new creation, too. You are reading the lesson by light actually created only a few minutes ago. Think of it! This wondrous product, manufactured, shipped ninety millions of miles, and delivered at your window, all in eight minutes!

ITS WONDERS.

And still the wonder grows with science. What marvelous trains and tracks are there that bring the light. Rays more wonderful than any railroad; wave-circles more curious than any car-wheel; unending trains so swift that they would go from Chicago to Boston before you could wink. And not only coming straight from the sun, but reflected from every object on earth in every direction;—the tracks crossing each other in infinite complexity, the trains forever running through each other. Yet with no stop nor confusion, but ever bringing to our eyes not only the light, but the unbroken pictures of everything before us.

For here is a still greater wonder. This light is an artist, too, sketching and sending in all directions exact portraits of everything it touches. Not in mere light and shade, but in colors also. For each ray in the beam of light, each hair in the wondrous brush, carries paints of all colors and mixes them in countless hues. So the light sends its ever-changing paintings of cloud, sea, field, flowers and faces, in all directions;—even condenses them in microscopic miniature in our eyes, yet so faithfully that we see the man across the street or the mountain across the State exactly as they are.

Not only these passing pictures in the eye, but permanent ones in the photograph. There the light draws your picture while the artist is picking up his pencil, sketches the whole street while the horse's foot is still poised in air,—more correctly than any artist, too. How patiently this light works! The astronomer exposes the negative to the dim nebula for hours, and so lets the light slowly draw details which are too faint for his eye to see in the telescope. How swiftly, too! He takes a photograph of the sun in the twenty-thousandth part of a second, and so preserves details too fleeting for his eye to catch. Yet even the wonders of light in the photograph are outdone by those in the spectroscope, where we see these delicate rays even bringing the secret of the sun's structure and telling the very elements he is made of.

STARLIGHT.

So the wonders of the light are revealed all the day. Nor does even the night hide, but still increase them. From moon and planets the sunlight is reflected, showing how, beyond our little shadow, day fills the solar system. While from stars a million times further than the sun, the light now comes with still larger story. Borne by these wondrous waves, traveling 100,000 miles while you take a step, and so traveling not for eight minutes like our sunlight, but for as many years and often centuries. Yet in this long voyage these delicate rays have not once forgotten their message, but write it in the spectroscope as faithfully as if they came but from across the street, telling us of countless other systems like ours, and how through them all the Creator is still warming the worlds, and forever saying, "Let there be light." Night is but a shadow and passing phantom; the eternal fact is *Day*.